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ABSTRACT

This article reviews self-control desensitization research with test anxious college students. The first section presents a discussion of the development of self-control desensitization (SCD) as a modification of systematic desensitization (SD), and procedures which differentiate SCD from SD including treatment rationale, the nature of anxiety hierarchies, actual desensitization procedures and the use of relaxation for coping in vivo. The second section is a review of research outcomes in the areas of self-reported test anxiety, effects of SCD on grades, analogue test performance, and trait anxiety. The third section offers a brief comparative summary of research outcomes, noting that overall, SCD seems effective in reducing self-reported test anxiety and trait anxiety. The fourth section is an examination of methodological issues including subject recruitment, procedural modifications, and integrity of treatment (i.e., the degree to which treatment is carried out as intended). The final section offers suggestions for future SCD research strategies; e.g., parametric, constructive, or client and therapist variation. (WAS)

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Self-Control Desensitization and Test Anxiety

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Running Head: Desensitization

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Abstract

This article surveys self-control desensitization studies with test anxious college students. Overall, the results suggest that self-control desensitization is effective in reducing self-reported test anxiety and trait anxiety. Although it has been an effective treatment, the failure to implement self-control desensitization in a standard manner may have resulted in an underutilization of its potential. Other methodological issues and directions for future research are discussed.

Self-Control Desensitization and Test Anxiety: Outcome and Methodology

Self-Control desensitization (SCD) developed as a modification of systematic desensitization (SD). Goldfried (1971;1977) noticed some serendipitious benefits with clients undergoing SD. Some clients reported anxiety reduction after they underwent relaxation training, but before the desensitization proper had begun. This appeared to contradict the theory of SD which considered the desensitization procedures as the active treatment ingredient.

Also, some SD clients reported anxiety reduction in situations widely different from those represented in the SD hierarchy. Goldfried claimed that the reduction of widely different anxieties could not be explained by stimulus generalization. Instead, it appeared that clients had begun to use their relaxation as a way to cope with their anxiety (Goldfried, 1977).

Goldfried took the SD procedure, added several self-control elements to it, and called it self-control desensitization. He specifically told clients to follow the same procedures that some SD clients had been doing spontaneously: learning relaxation as a skill to relax away anxiety. In a self-control approach, clients are taught to apply the relaxation to any anxiety and need not limit themselves to reducing

those items represented on a single theme hierarchy. Also, SCD teaches a skill which can improve with practice over time (Goldfried, 1971; 1977).

The procedures that differentiate SCD from SD have a common theme: they increase the client's sense of mastery and control over the treatment. The first difference is in their treatment rationale. The counselor using SD implies that the client will improve automatically as a consequence of the treatment. This contrasts with SCD where clients are told that the anxiety reduction depends on their active participation in the treatment.

Second, the procedures differ in the nature of the hierarchy. In SD, the clients establish hierarchies according to the degree of anxiety elicited by each item. In SCD, the item order is not crucial and the items need not deal with the same theme.

Third, SD differs in the actual desensitization procedures. The counselor using SD tells the client to terminate the aversive image when anxiety is experienced. The counselor in SCD tells the client to stay in the imaginal situation and attempt to relax away the anxiety.

Finally, the procedures differ in the use of relaxation for coping in vivo. SD clients are told they will be desensitized to specific stimuli through imaginal techniques. SCD clients are encouraged to apply the relaxation to reduce

anxiety in a wide range of situations.

Although SCD has been effective in reducing several different types of anxiety, most studies with SCD have been with test anxiety (Denney, 1981). This article will review the outcome and methodology of SCD test anxiety reduction studies. For purposes of clarity, the reader should be aware that the article cited as Deffenbacher and Michaels (1981) is a follow-up of a previous study (Deffenbacher, Michaels, Michaels, & Daley, 1980).

Outcome

Self-Report of Test Anxiety

SCD has been consistent in reducing self-reported test anxiety. All of the SCD studies showed either a reduction in test anxiety in comparison to a no-treatment control group (Deffenbacher et al., 1980; Deffenbacher & Parks, 1979; Denney & Rupert, 1977; Knapp & Mierzwa, Note 1; Spiegler, Cooley, Marshall, Prince, Puckett, & Skenazy, 1976; Zemore, 1975) or in comparison with an attention-placebo group (Osarchuk, Note 2). Furthermore, SCD has been able to maintain the test anxiety reductions at a follow-up (Deffenbacher & Michaels, 1981; Deffenbacher & Parks, 1979; Knapp & Mierzwa, Note 1; Osarchuk, Note 2).

Grades

The effects of SCD on grades has been mixed. Denney and

Rupert (1977) and Knapp and Mierzwa (Note 1) found that SCD improved grades. Deffenbacher et al. (1980) found improvements in grades, but these were not maintained at a follow-up (Deffenbacher & Michaels, 1981). Harris and Johnson (1980) found no grade improvement with SCD.

Tryon (1980) has suggested that researchers of test anxiety should not necessarily expect an improvement in grades because other factors such as attitudes towards school or study habits also influence grades. Two SCD studies have considered how study habits, in addition to anxiety, have influenced grades. Knapp and Mierzwa (Note 1) deleted students with low scores on the Survey of Studey Habits and Attitudes (Brown & Holzman, 1967) and found grade improvement among the SCD students. Harris and Johnson (1980) added a study habits component to their SCD program but found no improvement in grades.

Analogue Test Performance

The outcome on analogue test performance is also mixed. Although Denney and Rupert (1977) found that the SCD treatment significantly improved performance on the analogue performance measure, other studies have been unable to find similar improvements (Deffenbacher et al., 1980; Deffenbacher & Parks, 1979).

The inability of SCD to improve analogue test performance consistently is similar to the results with other anxiety reduction treatments (Tryon, 1980). Practice effects may be responsible

when significant improvements do occur. The only study to find significance used a pre-test post-test design (Denney & Rupert, 1977), whereas the studies by Deffenbacher used a post-test only design and failed to find improvement. More sensitive analogue measures of test anxiety are needed (Barrios & Shigetomi, 1979).

Trait Anxiety

Kazdin and Wilson (1978) have stated that the reduction of the presenting problem is not the only way to evaluate counseling techniques. Treatments may also be evaluted on the generality of the gains or the breadth of benefits. One of the theoretical advantages of SCD was that it encouraged clients to apply the relaxation to all anxiety producing situations--not only anxiety while taking tests. Consequently, SCD studies typically measure the generalization of gains to nontargeted anxieties.

Most SCD programs were able to reduce nontargeted anxieties (Deffenbacher et al., 1980; Deffenbacher & Parks, 1979; Harris & Johnson, 1980; Knapp & Mierzwa, Note 1; Zemore, 1975). These reductions have been maintained at a follow-up (Deffenbacher & Michales, 1981; Knapp & Mierzwa, Note 1).

Finally, two studies found nonsignificant trends for SCD to have lower trait anxiety than the no-treatment control

group (Denney & Rupert, p =.11; Spiegler et al., 1976, p = .15). These two studies did not use a follow-up assessment which may have weighed the evidence against SCD because it is theoretically a skill which imporves with practice over time (Goldfried, 1977).

Comparative Outcome

The various anxiety reduction programs have had highly similar outcomes on test anxiety, grades, and nontargeted anxieties. SCD was equal to SD (Deffenbacher & Parks, 1979; Denney & Rupert, 1977; Knapp & Mierzwa, Note 1; Spiegler et al., 1976; Zemore, 1975), to systematic rational restructuring (Osarchuk, Note 2), to covert modeling (Harris & Johnson, 1980), and to anxiety management training (Deffenbacher et al., 1980). The finding of significant differences in outcomes has been infrequent. Denney and Rupert (1977) found that SCD was superior to SD on one of two self-report measures and Harris and Johnson (1980) found that covert modeling was superior to SCD in improving grades. No other significant differences on grades, test anxiety, or nontargeted anxieties were found. These studies provide weak evidence that SCD is superior to SD in reducing test anxiety. As will be discussed

below, the study by Harris and Johnson had methodological flaws which warrant caution in the interpretation of the results.

Similarities in outcome may be due, in part, to the overlap in the procedures found in the different treatments. The descriptive labels may imply that these treatments were derived from different theoretical models. In fact, this may not be true (Allen, 1977). Most of the treatments are relaxation based (SCD, SCD, anxiety management training) or include a self-control component (SCD, systematic rational restructuring, anxiety management training). The results may be identical because some of the components of each program were identical.

Methodology

Test anxiety programs have been criticized for their failure to evaluate counselor effects or because they lack attention-placebo groups. Although these criticisms apply to SCD as well, they have been presented fully elsewhere (Allen, Elias, & Zlotlow, 1980; Tryon, 1980) and will not be discussed here further. Instead, attention will be focused on methodological issues which have not been presented in detail elsewhere: method of subject recruitment, procedural modifications

Of SCD, and the integrity of treatment.

Method of Subject Recruitment

The issue of external validity is raised when studies rely on subject pool students. Are the effects demonstrated with subject pool students the same as could be expected with volunteer students? Or, as suggested by D'Alelio and Murray (1981), are test anxious students from subject pools less motivated than students recruited as volunteers?

Studies with subject pool students and studies with volunteer students showed some differences. Subject pool students tend to have higher test anxiety scores than volunteer students because subject pool studies can screen large numbers of students and set high cut-off scores. In addition, subject pool students tend to have lower attrition rates than volunteer students. Studies with volunteer students had a 16 per cent attrition rate from pre-test to post-test (25 out of 158 students)(Deffenbacher & Parks, 1979; Harris & Johnson, 1980; Knapp & Mierzwa, Note 1; Spiegler et al., 1976); whereas studies with subject pool students had a 10 per cent attrition rate from pre-test to post-test (16 out of 160 students)(Deffenbacher et al., 1980; Denney & Rupert, 1977). It is not known if the lower dropout rate for subject pool students occurred because they had a higher initial level of test anxiety (and were more motivated to participate in the study) or because they were receiving partial course credit

for their participation. Nevertheless, similar results have been found regardless of the method of subject recruitment.

Procedural Variations

SCD studies have often varied in their specific ingredients. Some of the procedural modifications dealt with the attention given to nontargeted anxieties. Denney and Rupert (1977) did not use nontargeted anxieities in the anxiety hierarchy nor did they require SCD students to relax away nontargeted anxieties in vivo. This may explain why they failed to find significant reductions in trait anxiety.

The study by Harris and Johnson (1980) also contained procedural variations. They did not adhere to a strict SCD format because they failed to include in vivo relaxing away of anxieties (targeted or nontargeted) as part of their program. Also, they used a shortened format. Although other SCD programs contained between 300 and 400 minutes of treatment time, Harris and Johnson only used 200 minutes of SCD (and 100 minutes of study skills training).

The failure to implement SCD in a consistent fashion leads to difficulties in comparing studies. It is not known if the procedural difficulties are related to or irrelevant to differences in outcome across studies. Consistency in implementation is needed to eliminate the possibility that procedural modifications are responslbe for outcome differences.

Integrity of Treatment

Integrity of treatment refers to the degree to which the treatment is administered or carried out as intended (Kazdin, Note 3; Yeaton & Sechrest, 1981). If treatments are not implemented as intended, then results are open to multiple interpretations. If nonsignificant results are found, it is not known if the treatment is incapable of working, but simply was not implemented as intended. If significant results are found, it is not known if the treatment is capable of working, or if the treatment works only when additional elements are added.

Information on the integrity of treatment is rarely gathered and SCD treatments may not lack integrity any more than other anxiety reduction procedures. But SCD programs by their nature are vulnerable to deviations in treatment implementations. They are carried out over three to four weeks which allows the counselors to lapse temporarily in the treatment implementation. Also, they are often conducted in groups in which the interaction of the students may diverge from a strict protocol.

Studies can increase the integrity of treatment by using detailed treatment manuals, monitoring counselor adherence to the manual, having counselors meet periodically throughout the course of the treatment to standardize procedures, and using standardized relaxation tapes across groups.

In self-control studies, clients--as well as counselors--can violate treatment integrity. In SCD, the clients have the

responsibility to administer treatment ingredients. That is, they are required to practice relaxation and to apply the relaxation to targeted and nontargeted anxieties in vivo. Homework sheets and discussions within the sessions can provide a check on client adherence to the treatment regimen.

Client violations of integrity of treatment are a special issue when SD and SCD are compared. As noted above, SD clients sometimes construe the relaxation as a self-control procedure and apply it in a manner similar to SCD clients (Goldfried, 1977). This occurs often in relaxation based treatments and may explain why relaxation only treatments sometimes show therapeutic benefits (Goldfried & Trier, 1974).

When SD clients apply the relaxation as a self-control procedure, the distinctions between the two treatments become blurred. Treatments intended as distinct may become highly similar. When SD and SCD treatments are being compared, counselors should try to minimize the spontaneously application of relaxation as a self-control procedure within the SD group. SD students might be given counterdemand instructions. That is, they could be told not to apply relaxation as a self-control procedure until the presenting problem is reduced (i.e. at the end of the program). Although this may make interpretation of the results ambiguous at a follow-up, it would avoid confounding the SD treatment at post-test.

Future Research

Most studies have compared the outcome of SCD with other anxiety reduction treatments. These outcome studies are valuable because they demonstrate the effectiveness of the treatments to potential users of SCD. However, the comparative outcome studies conducted to date tend to have limitations. The external validity of the studies is limited because researchers often failed to implement SCD in a consistent manner. Also, little can be gained from understanding the components responsible for change when treatments with overlapping components are compared. Nevertheless, comparative outcome studies have been emphasized at the neglect of other research strategies.

Future research should be directed towards determining ways to maximize the potential of SCD through parametric, constructive, or client and therapist variation strategies (Kazdin, 1979). In a parametric treatment strategy, specific aspects of the treatment are varied to maximize therapeutic change (Kazdin, 1979). Any aspect of SCD (the amount of time spent learning muscle relaxation; frequency of practice; length of the hierarchy; time spent relaxing away anxiety) could be systematically varied and measured to determine which provides optimal benefits.

The constructive treatment strategy also attempts to increase benefits. The constructive approach differs from the parametric strategy in that it adds elements which are theoretically ir-

relevant to the treatment program (Kazdin, 1979). The addition of a study skills program to SCD is an example of a constructive design.

Certain procedures should be taken when study skills programs are added to SCD. Study skills training refers to a pot pourri of procedures such as reading skills, note taking, group discussion, or self-monitoring of study behaviors. The exact components vary from study to study. Unless the study skills components are specified, it will not be known what is being added to the SCD program. In addition, students should complete inventories of study skills or habits to determine if they have actually improved.

Finally, future studies should consider how client characteristics interact with treatments. According to Goldfried, SCD is not the optimal mode of treatment for all anxieties (and presumably all test anxieties) (Goldfried & Davison, 1976). Rather, Goldfried argues that treatments should vary according to what causes or maintains the anxiety. Anxiety could be caused or maintained by classical conditioning, negative self-statements, unrealistic self-demands, skill deficits, or overtaxing environmental demands. Classically conditioned anxieties should be treated by SD or SCD: negative self-statements or unrealistic expectations should be treated by cognitive restructuring; overtaxing environmental demands should be treat-

ed by altering the environment; and skill deficits should be treated by skill remediation. Although most students will not neatly fit into these categories, nevertheless, they may vary according to the degree to which each factor contributes to or maintains the test anxiety. Theoretically, the effects of SCD are limited when clients are not differentiated according to the origins of their anxiety.

Unfortunately, Goldfried's conceptual clarity does not guarantee ease of application. The problem in this case lies in determining the origins of anxiety. Although Goldfried offered some guidelines, no standardized procedures exist to differentiate clients according to the origin of their anxiety (Goldfried & Davison, 1976). Future research should address this issue.

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